

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) William J. Cote, et al.

Examiner: M. A. Marcheschi

Serial No.: Unassigned

Art Unit: 1755

Filed: Herewith

Docket No. BUR919980100US2

For: Chemical-Mechanical Planarization
of Barriers or Liners For Copper
Metallurgy

Dated: January 18, 2002

Assistant Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

In connection with filing the above-identified application under 37 C.F.R. §1.53(b),
applicants submit the following amendment for consideration by the Examiner and entry of
record in the above-identified patent application.

IN THE CLAIMS:

Please cancel Claims 1-28, and add new Claims 29 and 30.

CERTIFICATE OF MAILING

“Express Mail” mailing label number: ELO46035553US

Date of Deposit: January 18, 2002

I hereby certify that this correspondence is being deposited with the United States Postal Service “Express Mail Post Office to Addressee” service under 37 C.F.R. §1.10 on the date indicated above and is addressed to: Assistant Commissioner for Patents, Washington, DC 20231.

Dated: January 18, 2002


Arnette Dodge

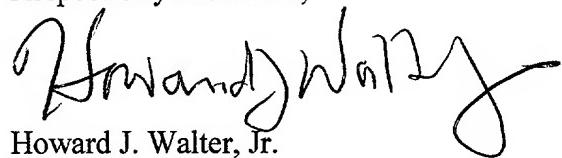
29. The method of co-planarizing copper or copper-based metallurgy and a refractory metal-based barrier layer or liner in an interlevel dielectric of a semiconductor device comprising the steps of:

planarizing said copper or copper-based metallurgy using a first slurry comprising an oxidizing agent comprising ferric nitrate, an oxidation inhibitor, a surfactant and an abrasive comprising alumina in water; said first slurry having a pH of between 1.2 and 2.5 and said first slurry capable of removing copper selectively with respect to said barrier layer or liner;

co-planarizing said barrier layer or liner and said interlevel dielectric using a second slurry comprising a peroxide agent, an oxidation inhibitor, a surfactant and an abrasive comprising silica in water; said second slurry having a pH of between 3.0 and 7.5 and said second slurry capable of removing said barrier layer or liner.

30. The method of claim 29 wherein said surfactant comprises a sulfated fatty acid.

Respectfully submitted,



The image shows a handwritten signature in black ink, appearing to read "Howard J. Walter, Jr." Below the signature, the name "Howard J. Walter, Jr." is printed in a smaller, standard font.

Reg. No. 24,832